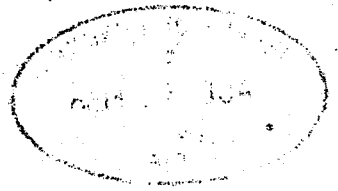


Exhibit 20

THE AMERICAN HERITAGE DICTIONARY OF **SCIENCE**

Robert K. Barnhart

with Sol Steinmetz, Managing Editor



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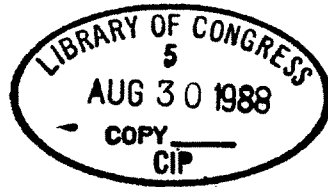
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ny enzymes important for cell
ochondria produce most of the energy
cells and appear in the form of gran-
aments, but often change their shape
umber in each cell remains about the
g animals convert their mitochondria
essed by cold-blooded animals when
eason arrives (John G. Lepp). See the
some [New Latin, from Greek *mitos*
ros lump]

adj. of or having to do with mi-
chondrial DNA.

mit'ə kon'drē ən, *n.* singular of
the mitochondrion ... is frequently a
bout 1-2 microns in diameter (New
alled chondriosome.

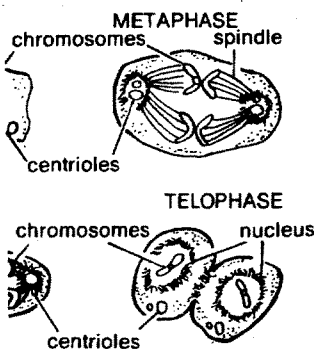
jə net'ik, *adj.* = mitogenic.

n'ik, *adj.* *Biology.* that promotes or
mitogenic agents.

r mi tō'sis, *n.* *Biology.* 1 the process
leus of a cell divides to form two new
aining the same number of chromo-
somal nucleus; nuclear division. Mitosis
d into four stages: *prophase*, in which
romatin threads of the nucleus con-
icroscopically visible chromosomes,
sists of two genetically identical sis-
etaphase, in which the nuclear mem-
and the chromosomes line up near
cell; *anaphase*, in which one chroma-
now called a daughter chromosome)
ch end of the cell; and *telophase*, in
ter chromosomes lose their visible
n appear as chromatin threads, and
membranes form around the two
es. During telophase, the cytoplasm
by a process called cytokinesis), and
formed.

which mitotic nuclear division occurs.

mitosis, from Greek *mitos* thread]
ik), *adj.* of or having to do with mito-
mitotic cell division, daughter cells
number of chromosomes of the origi-
legents Syllabus). —mitotically, *adv.*



), *Anatomy.* the valve of the heart
rium and left ventricle, which pre-
om flowing back into the atrium:

*Damage to the mitral valve ... is one of the commonest
pathological conditions of the heart* (Arthur Selzer).
Also called left atrioventricular valve. Compare
tricuspid valve. See the picture at valve.

mixed, *adj.* 1 *Botany.* (of an inflorescence) combining
both determinate and indeterminate arrangements, as
a thyrus does. 2 *Anatomy.* consisting of both sensory
and motor fibers: *Nerves ... can be sensory nerves, mo-
tor nerves, and mixed nerves* (Biology Regents Sylla-
bus). 3 *Physiology.* secreting more than one substance:
a mixed gland.

mixed bud, *Botany.* a bud producing both foliage and
flower. Compare flower bud, leaf bud.

mixed number, *Mathematics.* a number consisting of a
positive or negative integer and a fraction. EXAMPLES:
1 1/2, 16 2/3, - 25 9/10.

mixed tide, *Oceanography.* a tide that does not flow and
ebb regularly twice a day: *Some Pacific Islands have
mixed tides, such as two high tides daily, with only a
little ebb between, and then a very low tide* (Robert O.
Reid).

mixture, *n.* *Chemistry.* the product of two or more sub-
stances mixed together, but not chemically combined.
Mixtures can be separated mechanically by distilla-
tion, freezing, melting, etc. Compare compound. [from
Latin *mixtura*, from *miscere* to mix]

MKS or MKSA, *adj.* of or designating a system of
measurement based on the meter, the kilogram, the
second, and the ampere: *The joule is the MKS unit of
work.* [from *m(eter)* + *k(ilogram)* + *s(econd)* +
a(mpere)] ► See the note under SI unit.

ml, *abbrev.* milliliter or milliliters.

mm or mm., *abbrev.* millimeter or millimeters.

mm² or mm.², *abbrev.* square millimeter.

mm³ or mm.³, *abbrev.* cubic millimeter.

mmf or m.m.f., *abbrev.* magnetomotive force.

Mn, *symbol.* manganese.

MNS (*em' en' es*), *n.* *Immunology.* a system of classifying
blood groups based on genetically controlled anti-
gens found within the membranes of red blood cells.
—*adj.* of or having to do with this system of classifica-
tion. Compare ABO.

Mo, *symbol.* molybdenum.

mobile, *adj.* *Chemistry.* tending to be naturally fluid;
moving or flowing easily: *Mercury is a mobile metal.*
—*mobility*, *n.* natural fluidity; ease of movement or
flow.

Möbius strip or Möbius band (*moe'bē əs or mö'bē əs*),
Geometry. a continuous, one-sided surface formed by
turning one side of a rectangle 180 degrees and then
joining it to the opposite side: *The unique topological
property of the Möbius strip is that it has one surface
and one edge* (Carol Gibson). *If you cut the bottle in
half vertically, you get two Möbius bands, one a mirror
image of the other* (Martin Gardner). Also spelled
Moebius strip or band. Compare Klein bottle. [named
after August F. Möbius, 1790-1868, German mathe-
matician]

modal, *adj.* *Statistics, Physics.* of or having to do with
a mode or modes.

mode, *n.* 1 *Mathematics, Statistics.* the number that oc-
curs most frequently in a set of numbers or series of
data: *The presence of two or more modes usually
means that the sample is not homogeneous, i.e., that*

two or more distinct distributions have been combined
(O. L. Davies).

ASSOCIATED TERMS: see average.

2 *Physics.* any one of various patterns in which vibra-
tion may occur. In a freely vibrating system, oscilla-
tion is restricted to certain characteristic patterns of
motion at certain characteristic frequencies. *Waves of
given frequency can go through a pipe in many pat-
terns, called modes, each with a different wavelength
and velocity. When the pipe is small, only one mode
can travel* (Scientific American).

3 *Geology.* the actual mineral composition of a rock,
stated quantitatively in percentages by weight or vol-
ume. Compare *norma*.

[from Latin *modus* measure, manner]

model, *n.* a simplified description or conception of a sys-
tem, used to understand the system or as the basis for
further study or investigation of its characteristics: *a
mathematical model of the global atmosphere, the
mechanistic model of the universe. A Michigan re-
searcher has created a computer model of a bacterium,
the ubiquitous Escherichia coli. Fed on machine lan-
guage input, the model so far has been able to grow,
function and reproduce itself just like its protoplasmic
counterpart* (Science News).

moderate (*mod'ər it*), *adj.* *Meteorology.* denoting a
breeze with a velocity of 13-18 miles per hour (on the
Beaufort scale, force 4), or a gale with a velocity of
32-38 miles per hour (Beaufort force 7).

—*v.* (*mod'ər āt*), *Nuclear Physics.* to slow down or
lower the energy of (a particle, especially a neutron):
*Most of today's power reactors use graphite (carbon)
or water (hydrogen and oxygen) to moderate neutron
speed* (Robert C. Cowen).

moderator, *n.* *Nuclear Physics.* a material, such as
graphite, used in a reactor to reduce the speed of neu-
trons, making them more efficient in splitting atomic
nuclei.

modification, *n.* *Biology.* a change in an organism result-
ing from external influences, and not inheritable.

modiolus (*mō di'ə ləs or mō di'ə ləs*), *n., pl. -li (-li).*
Anatomy. the central conical axis around which the
chochlea of the ear winds. [from New Latin *modiolus*,
from Latin, nave of a wheel]

modular (*moj'ū lər*), *adj.* *Mathematics, Physics.* of or
having to do with a modulus or moduli.

modular arithmetic, a form of arithmetic dealing with
the remainders after a set of numbers are divided by
a single number, the modulus: *Modular arithmetic is
a concept with which we are all familiar. For example,
if it is ten o'clock, then three hours later it will be one
o'clock (and not, as in simple arithmetic, thirteen
o'clock). A clock or watch is an example of what is
known as a "modulo 12" system. The "12" means that
there are only 12 integers* (S. J. Colley).

cap, face, father; best, bē, tērm; pin, five;

rock, gō, ōrder; oil, out; cup, pūt, rīle,

yū in use, yū in uric;

ng in bring; sh in rush; th in thin, th in then;

zh in seizure.

ə = a in about, e in taken, i in pencil, o in
lemon, u in circus